

Name: _____ Date: _____ Period: _____

Biogeochemical Cycles Diagram Assignments

Ms. OK, AP Biology, 2014-2015

Directions: For each of the following cycles, draw a diagram showing the key processes by which atoms (or molecules) are cycled between living organisms and the non-living components of their environment. Use one color arrow to show processes of assimilation (organisms integrating the atom or molecule into their own cells / tissues). Use another color arrow to show processes of release (atoms / molecules exiting the organisms' bodies into the nonliving environment). Label all the key processes identified below.

Example (The Water Cycle):

~~~~~ = Assimilation

----- = Release

| Cycle                       | Key Processes to Include in Your Diagram                                                                                                                                                                                                      | Your Diagram |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Water (Hydrogen and Oxygen) | <ul style="list-style-type: none"> <li>-Evaporation</li> <li>-Condensation</li> <li>-Precipitation</li> <li>-Transpiration</li> <li>-Plant roots absorbing water from the soil</li> <li>-Animals drinking water</li> <li>-Sweating</li> </ul> |              |

#### **Cycles You Must Complete**

| Cycle                                 | Key Processes to Include in Your Diagram                                                                                                                                  | Your Diagram |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Phosphorus (same process with sulfur) | <ul style="list-style-type: none"> <li>-Weathering</li> <li>-Animals eating plants</li> <li>-Plants absorbing phosphorus from the soil</li> <li>-Decomposition</li> </ul> |              |

| Cycle  | Key Processes to Include in Your Diagram                                                                                                                                                                                                                                                                                                               | Your Diagram |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Carbon | <ul style="list-style-type: none"> <li>-Photosynthesis(<math>\text{CO}_2 \rightarrow \text{C}_6\text{H}_{12}\text{O}_6</math>)</li> <li>-Cellular Respiration (<math>\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow \text{CO}_2</math>)</li> <li>-Decomposition</li> <li>-Combustion</li> <li>-Animal consumption of plants or other animals</li> </ul> |              |

| Cycle    | Key Processes to Include in Your Diagram                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Your Diagram |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Nitrogen | <ul style="list-style-type: none"> <li>-Nitrogen Fixation (<math>\text{N}_2 \rightarrow \text{NH}_4^+</math>)</li> <li>-Nitrification (<math>\text{NH}_4^+ \rightarrow \text{NO}_2^- \rightarrow \text{NO}_3^-</math>)</li> <li>-Denitrification (<math>\text{NO}_3^- \rightarrow \text{N}_2</math>)</li> <li>-Ammonification / Decomposition (<math>\text{NO}_3^- \rightarrow \text{NH}_4^+</math>)</li> <li>-Plant absorption of <math>\text{NO}_3^-</math></li> <li>-Animal consumption of plants and other animals</li> <li>-Animal excretion (aka urination)</li> </ul> |              |